Curriculum Vitae
Chit Than

Education:

1992 Ph.D. (Chemistry), University of New South Wales, Australia.
1985 Diploma in Chemistry Research Techniques, University of New South Wales, Australia.
1982 M.Sc. (Chemistry), University of Rangoon, Burma.
1974 B.Sc. (Chemistry), University of Rangoon, Burma.

Memberships:

Member (2119309) American Chemical Society.
Chartered Chemist A (9388) The Royal Australian Chemical Institute.

Employment:

1997-Present: Chemist/Scientist, NTLF, (LBNL).
1993-96: Post-Doctoral Fellow, NTLF, (LBNL).
1991-93: Research Officer, Dept. of Inorganic and Nuclear Chemistry, University of New South Wales, Australia.
1986-90: Assistant Lecturer, University of Rangoon, Burma.
1977-85: Tutor, Dept. of Chemistry, University of Rangoon, Burma.

Other Training:

1985 Computer Science for Chemistry, Australia.
1994 Tritium Labelling and Analysis Workshop, LBNL, Berkeley.
1997 HP GC-MS-MSD ChemStation Instrument Operation Course, H4043A, Atlanta.

Experimental Skills:

Tritium Labelling Chemistry:

Eleven years laboratory experience in tritiation and deuteration of various organic compounds and pharmaceutical drugs, including extensive use of vacuum techniques, and working with 10's of Curies of tritium gas and tritiated water in many individual experiments. Also contributed to development of new labelling catalysts, new tritide reagents and labelled compounds such as, new types of plain and metal loaded microporous $AlPO_4$ catalysts for tritium isotope exchange reactions, specific tritium labelled Nitrobenzene, Aminolevamisole, Levamisole, Benzimidazole carbamates, 4-Aminobut-2-Enoic acids and 4-Amino-3-Phenylbutanoic acid, highly tritiated BT_3-THF, $LiBH_4$, $NaBH_4$, KBH_4 and $NaBH(OAc)_3$.

Radioisotope Handling:	Eleven years experience in extensive handling of radioactive substances, especially tritiated compounds, and one year experience in handling, transferring and treating of tritiated mixed wastes.
Nuclear Radiation Monitoring:	Extensive experience in the following Nuclear Radiation Monitoring systems: low background liquid scintillation counting, multi-channel γ-ray spectrometers, Geiger and Ion chamber types detectors, high purity Ge detector, NaI(Tl) scintillation detector, Proportional counter, solid state β, detector and solid state α spectrometer, portable nuclear radiation monitors, airborne Tritium pollution monitor.
Gas Chromatography:	Eleven years continuous use of radio-gas chromatograph in tritium labelling studies, including experience in modification of packed column GC to ultra-bore capillary Radio-GC.
GC/MS:	Two years experience in maintaining and operating GC/MS.
HPLC:	Three years experience in analysis and purification of deuterated and tritiated compounds.
UV/Visible and other Spectroscopies:	Eight years continuous use of X-ray powder diffraction and mass spectrometer. Eleven years experience in occasional use of various spectrometers.
NMR Spectroscopy:	Eleven years experience in extensive use of ^{1}H, ^{2}H, ^{3}H and ^{11}B NMR spectroscopy for the purpose of determining purity and isotope distributions in deuterated and tritiated compounds.
Accelerators:	Seven years continuous use of 14 MeV sealed type neutron generator and pneumatic sample transfer system for Fast Neutron Activation Analysis.
Electronics:	Contributed to design and construction of various temperature controlling systems, safety alarms and waste system for tritium recovery system at NTLF.
Computer:	Word Processing, Spreadsheet & DataBase, Graphics, Statistics and html language. Wrote computer program for B.E.T. apparatus,. established NTLF WWW Home Page.
Engineering & Design	Designed sample holder for Fast Neutron Activation Analysis and various pieces of micro-scale, tritiation glassware. Designed and constructed new vacuum tritiation line and B.E.T. apparatus. Contributed to design, construction and operation of NTLF vacuum deuteration line, constructed and operated NTLF mixed waste treatment system.
Tritium Workshop:	Served as instructor at various Tritium Safety Courses in Australia.
Publications:	24 papers have been published in international Scientific Journals.

LI-YANG CHANG, Ph.D., REA

Lawrence Berkeley National Laboratory, MS 26-143
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EDUCATION

Ph.D., Chemical Engineering, 1986
State University of New York at Buffalo.

M.S., Chemical Engineering, 1981
Oregon State University. Second Major: Mechanical Engineering.

B.S., Chemical Engineering, 1976
Tunghai University, Taiwan.

REGISTRATION

California Registered Environmental Assessor

PROFESSIONAL EXPERIENCE

1993 - Present	Environmental Engineer - Treatment/Pollution Prevention Lawrence Berkeley National Laboratory
1990 - 93	Sr. Project Manager - Wastewater/Remediation/Minimization Kleinfelder, Metcalf & Eddy, & MARK group, California
1989 - 90	Postdoctoral Associate -Minimization/Process Optimization University of California at Davis
1987 - 89	Associate Professor - Chemical and Environmental Engineering Chemical Engineering Department, Tunghai University, Taiwan
1984 - 87	Research Chemical Engineer - Combustion/Gasification Veritay Technology, New York
1981 - 84	Research Assistant - Water Desalination/Purification State University of New York at Buffalo.
1979 - 81	Research Assistant - Solid Material Gasification/Chemical Kinetics Oregon State University
1978 - 79	Research Chemical Engineer - Specialty Chemical/Wastewater Industrial Technology Research Institute, Taiwan

Dr. Li-Yang Chang has over 17 years of chemical and environmental engineering experience in conducting a variety of wastewater treatment, industrial water recycling and conservation, hazardous and mixed waste treatment, waste minimization, and pollution prevention projects for industries and governmental facilities. Dr. Chang published more than 30 technical papers and reports on waste management and treatment and two books in environmental education. At Lawrence Berkeley National Laboratory, Dr. Chang is a leading engineer of a multi-disciplinary team in pollution prevention and environmental management program. His relevant experience includes

- Industrial waste treatment, recycling, and water conservation analysis
- Tritiated mixed waste treatment and technology deployment
- Groundwater/soil monitoring, remediation, and sampling/analysis
- Hazardous/solid/medical/radioactive wastes management and reduction
- Solid wastes and VOC decomposition and emission minimization assessment

SELECTED PROJECT RESULTS

- Chang, L.-Y., C. Than, H. Morimoto, and P. Williams, Tritiated Mixed Waste: How Can We Deal with It?, presented at the International Isotope Society Central US Division Mixed Waste Symposium, Ann Arbor, MI, May, 1998.

- Chang, L.-Y., C. Than, H. Morimoto, and P. Williams, Treatment of Tritiated Mixed Waste by Catalytic Oxidation, Technology: J. Franklin Institute, Vol 334A, pp. 205 - 213, 1997.

- Chang, L.-Y., A Sustainable Growth Pathway for Industries - from Waste Minimization to an Integrated Environmental Management System, paper submitted to the 17th Annual Meeting of Society of Environmental Toxicology and Chemistry, 1996.

- Chang, L.-Y. and P. Williams, Thermal and Non-thermal Treatments of Organic Solvents in the Tritiated Mixed Waste and Solid Wastes, paper accepted by the Emerging Technologies in Hazardous Waste Management VIII Symposium, American Chemical Society, 1996.

- Chang, L.Y., An Industrial Wastewater Pollution Prevention Study - Evaluation of Precipitation and Separation Technologies, Environmental Progress, Vol 15, No. 1, pp 28-37, Spring, 1996.

- Chang, L.Y., A Treatability and Waste Minimization Study of the Chelated Copper Complex in Wastewater, paper in Waste Management, Vol 15, No. 3, pp 209-20, 1995.

- Wu, T.C. and L.Y. Chang, Changing Focus in the Water Quality Management Program of San Francisco Bay-Estuary: from Pollution Control to Protection of Ecology, paper presented at the Int'l CEP Conference '95, San Francisco, January, 1995.

- Chang, L.Y., Solid Waste Reduction through Gasification - Rapid Pyrolysis Kinetics and Secondary Effect Study, presented at AIChE San Francisco Annual Meeting, 1994.

- Chang, L.Y. & B.J. McCoy, Hazardous Waste Source Reduction Study with Treated Groundwater Recycling. Environmental Progress, 12, pp. 218-25, 1993

- Chang, L.Y., Engineering Methodology and Pollution Prevention - Engineering Education Protocols at Tunghai University and LBL. in Chemical Engineering Progress (Chapter One), pp S8-10, September, 1995.

- Chang, L.Y. & B.J. McCoy, Alternative Waste Minimization Analyses for The Printed Circuit Board Industry: Examples for Small and Large Manufacturers, Environmental Progress, pp 110-21, 1991.

- Chang, L.Y. & B.J. McCoy, Waste Minimization Processes for Printed Circuit Board Manufacturing Industry, Paper appeared at Hazardous Wastes & Hazardous Materials, 7: 293-318, 1990.

Name: **Philip Geoffery WILLIAMS, Ph.D.**

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Club & Society Memberships: Associate Member Royal Australian Chemical Institute
Member American Chemical Society
Member International Isotope Society
Member Eagle Alliance

Academic Record

Tertiary Education:

1976-79. University of New South Wales, N.S.W. B.Sc. (Hons I) in Chemistry. Thesis Title: "Zeolite Catalysis of Hydrogen Isotope Exchange Reactions."

1980-83. Ph.D. in Chemistry. Thesis Title: "Zeolite and Metal Catalysis of Hydrogen Isotope Exchange Reactions."

1981. Three months study at Surrey University, Guildford, U.K., conducting research into tritium NMR in the laboratory of Prof. J. Elvidge (supervised by Dr. John Jones, A/Prof. Mervyn Long and Mr. Jim Bloxsidge).

Prizes and Awards

1979: C.S.R. Chemicals Prize for Best Performance in 2.004, Chemistry Honours.
Honours Class One, and University Medal in Chemistry.

1980-1983: Commonwealth Postgraduate Award.

1991: Lawrence Berkeley Laboratory, Certificate of Merit in Technology Transfer, November 20, 1991.

1995: Lawrence Berkeley National Laboratory, Outstanding Performance Award, December 18, 1995.

1996: U.S. Department of Energy, Department Standards Committee, Special Recognition Award, May 31, 1996.

1997 National Performance Review, Team Award, April 1997, Vice President Al Gore.

1997: Lawrence Berkeley National Laboratory, Outstanding Performance Award, December 19, 1997.

Employment Experience

March - June 1979:	Demonstrator in 1st Year Chemistry, U.N.S.W. Demonstrator in Radioisotopes 1 at the N.S.W. Institute of Technology.
1980 - 1983:	Custom tritium labelling of a wide range of organic compounds, by request, at U.N.S.W.
Aug. 1983 - May 1984:	Professional Officer, U.N.S.W.
May 1984 - Dec. 1984:	Research Assistant, Ludwig Institute.
Jan. 1985 - May 1986:	Research Fellow, Ludwig Institute.
May 1986 - Sept. 1991:	Staff Scientist II, National Tritium Labelling Facility, Lawrence Berkeley Laboratory.
Oct. 1991 - May 1994:	Staff Scientist III, Lawrence Berkeley Laboratory.
Feb. 1991 - June 1997:	Assistant Adjunct Professor, Department of Pharmaceutical Chemistry, School of Pharmacy, University of California, San Francisco.

Experimental Skills

Gas Chromatography:	Assembly and continuous usage (over five years) of radio-gas chromatograph in isotope exchange studies.
High Pressure Liquid Chromatography:	Some experience in the use of HPLC equipment for the application of a diglyceride assay to cell extracts.
Mass Spectrometry:	Four years usage of Hitachi-Perkin-Elmer RMU-6L at low eV for the determination of the extent of deuteration of labelled materials.
Nuclear Magnetic Resonance Spectroscopy:	Four years operation of Bruker WP-60 at 64 MHz (tritium). Occasional operation of JEOL FX-100 at 100 MHz (protons). Four years operation of Bruker CXP-300 observing the following nuclei: protons, deuterium, tritium, carbon, cadmium, phosphorus. Eighteen months operation of Bruker WM-400 observing protons. Eleven years operation and oversight of an IBM Instruments (Bruker) AF-300 observing many nuclei, including: protons, deuterium, tritium, carbon, tin, sodium, oxygen, boron and phosphorus. Fourteen years experience in two-dimensional NMR techniques.
Liquid Scintillation Counting:	Eighteen years operation of various liquid scintillation counters for the estimation of the activity of tritiated materials.
Isotope Exchange Techniques:	Eighteen years laboratory experience in tritiation and deuteration of various organic compounds. This has included extensive use of vacuum techniques, and working with 100's of Curies of tritium gas in many individual experiments.
Engineering & Design Experience:	Eleven years employment at the NTLF has afforded the opportunity for extensive design and building of high level tritiation equipment. Most recently this included the design and construction (with H. Morimoto) of a completely new stainless steel tritiation line at the Facility.

Recent Publications (1995-98)

1. "Heterogeneous Palladium Catalyzed Exchange of Organic Compounds with Tritium Gas", P.G. Williams, Chit Than, S. Rabbani, M.A. Long and J.L. Garnett, J. Labelled Compd. Radiopharm., **36**(1), 1-14 (1995): CA 122 186570: LBL 28374.
2. "Preparation and Use of Lithium Tritide and Lithium Trimethoxyborotritide", E.M. Zippi, H. Andres, H. Morimoto and P.G. Williams, Synth. Commun., **25**(17), 2685-2693 (1995): CA 123 313089: LBL 34679.
3. "Synthesis of H-3 Labeled 5-Fluoro-3-[3-[4-(5-methoxy-4-pyrimidinyl)-1-piperazinyl]-propyl]-1H-indole, a Serotonergic Agent with Potential Antidepressant Activity", D.D. Dischino, K.D. Combrink, L. Doweyko, H. Morimoto, B.C. Pearce, P.G. Williams and J.P. Yevich, J. Labelled Compd. Radiopharm., **36**(8), 789-794 (1995): CA 123 339995: LBL 36777.
4. "Very High Isotope Incorporation in the C–1 Position of Glucose by Exchange with Deuterium or Tritium Gas", M.A. Long, H. Morimoto and P.G. Williams, J. Labelled Compd. Radiopharm., **36**(11), 1037-1049 (1995): CA 124 117709: LBL 37549.
5. "Preparation, NMR Characterization, and Labelling Reactions of Tritiated Borane–THF Complex at High Specific Radioactivity", C. Than, H. Morimoto, H. Andres and P.G. Williams, J. Org. Chem., **60**(23), 7503-7507 (1995): CA 124 86009: LBL 37562.
6. "Synthesis of a Tritium Labelled Antihistaminic Drug [^{3}H]-N,N-Diethyl-2-[4-(Phenyl-methyl)Phenoxy]-Ethaneamine•HCl", J.T. Kovalainen, H. Morimoto, P.G. Williams, J. Vepsäläinen, A. Reijonen and J. Gynther, J. Labelled Compd. Radiopharm., **36**(12), 1147-1156 (1995): CA 124 145521: LBL 37841.
7. "A Concerted Mechanism for Ethane Hydroxylation by the Particulate Methane Monooxygenase from Methylococcus capsulatis (Bath)", B. Wilkinson, M. Zhu, N.D. Priestley, H.H.T. Nguyen, H. Morimoto, P.G. Williams, S.I. Chan and H.G. Floss, J. Am. Chem. Soc., **118**(4), 921-922 (1996): CA 124 80509: LBL 37931.
8. "Synthesis of a Tritium Labelled Phospholipase A_2 Inhibitor: A Ligand for Macromolecular ^{3}H NMR Spectroscopy", A.S. Culf, H. Morimoto, P.G. Williams, W.J.S. Lockley, W.U. Primrose and J.R. Jones, J. Labelled Compd. Radiopharm., **38**(4), 373-384 (1996): CA 124 283060: LBL 37945.
9. "Tritium Labelled Alkenes via the Shapiro Reaction", M Saljoughian, H. Morimoto, C. Than and P.G. Williams, Tetrahedron Lett., **37**(17), 2923-2926 (1996): CA 125 11214: LBL 33862.
10. "Tritium and Deuterium Labelling Studies of Alkali Metal Borohydrides and their Application to Simple Reductions", C. Than, H. Morimoto, H. Andres and P.G. Williams, J. Labelled Compd. Radiopharm., **38**(8), 693-711 (1996): CA 125 221320: LBL 38127.
11. "Synthesis of High Specific Activity Tritium Labelled [2-^{3}H]-Adenosine-5'-Triphosphate", D.K. Jaiswal, H. Morimoto, E.L. Trump, P.G. Williams and D.E. Wemmer, J. Labelled Compd. Radiopharm., **38**(8), 743-752 (1996): CA 125 248298: LBL 38206.
12. "Observation of Kinetic Tritium Isotope Effects by Dynamic NMR. The Tautomerism of Porphyrin", J. Braun, H-H. Limbach, P.G. Williams, H. Morimoto and D.E. Wemmer, J. Am. Chem. Soc., **118**(30), 7231-7232 (1996): CA 125 114372: LBL 38164.
13. "Applications of Tritium NMR to Macromolecules: A Study of Two Nucleic Acid Molecules", M.G. Kubinec, A.S. Culf, H. Cho, D.C. Lee, J. Burkham, H. Morimoto, P.G. Williams and D.E. Wemmer, J. Biomol. NMR, **7**(3), 236-246 (1996): CA 125 109361: LBL 38038.
14. "[6-Chloro-3-pyridylmethyl-^{3}H]Neonicotinoids as High-Affinity Radioligands for the Nicotinic Acetylcholine Receptor: Preparation Using NaB^3H_4 and LiB^3H_4", B. Latli, C. Than, H. Morimoto, P.G. Williams and J.E. Casida, J. Labelled Compd. Radiopharm., **38**(11), 971-978 (1996): CA 125 320508: LBL 38502.
15. "Synthesis, NMR Characterization, and a Simple Application of Lithium Borotritide", C. Than, H. Morimoto, H. Andres and P.G. Williams, J. Org. Chem., **61**(25), 8771-8774 (1996): CA 126 7789: LBNL 39394.

16. "Kinetic H/D/T Isotope and Solid State Effects on the Tautomerism of the Conjugate Porphyrin Monoanion", J. Braun, R. Schwesinger, P.G. Williams, H. Morimoto, D.E. Wemmer and H-H. Limbach, J. Am. Chem. Soc., **118**(45), 11101-11110 (1996): CA 126 7612: LBL 38661.
17. "N-Tritioacetoxyphthalimide: A New High Specific Activity Tritioacetylating Reagent", M. Saljoughian, H. Morimoto, P.G. Williams, C. Than and S.J. Seligman, J. Org. Chem., **61**(26), 9625-9628 (1996): CA 126 60336: LBNL 38879.
18. "Synthesis of ^{3}H Labeled Dihydrorotenone", J.P. O'Neil, H.F. VanBrocklin, H. Morimoto and P.G. Williams, J. Labelled Compd. Radiopharm., **39**(3), 215-221 (1997): CA 126 238241: LBNL 39393.
19. "Tritiated Chiral Alkanes as Substrates for Soluble Methane Monooxygenase from *Methylococcus capsulatis* (Bath): Probes for the Mechanism of Hydroxylation", A.M. Valentine, K.E. Liu, B. Wilkinson, S. Komar-Panicucci, N.D. Priestley, P.G. Williams, H. Morimoto, H.G. Floss and S.J. Lippard, J. Am. Chem. Soc., **119**(8), 1818-1827 (1997): CA 126 183047: LBNL 39878.
20. "Synthesis of High Specific Radioactivity 3,5-[$^{3}H_6$]Dimethoxy-4-hydroxyacetophenone, an Inducing Compound of the *vir* Gene in *Agrobacterium tumefaciens*", S. Lee, H. Morimoto and P.G. Williams, J. Labelled Compd. Radiopharm., **39**(6), 461-470 (1997): CA 127 121541: LBNL 40323.
21. "Stereochemistry of the Methyl --> Methylene Elimination in the Enzyme-Catalysed Cyclization of Geranyl Disphosphate to (4*S*)-Limonene", R.M. Coates, C.S. Elmore, R.B. Croteau, D.C. Williams, H. Morimoto and P.G. Williams, J. Chem. Soc., Chem. Commun., 2079-2080 (1997): CA 128 61637: LBNL 40772.
22. "Tritium NMR Studies of the Human Carbonic Anhydrase I - Benzenesulfonamide Complex", A.S. Culf, J.T. Gerig and P.G. Williams, J. Biomol. NMR, **10**, 293-299 (1997): LBNL 40333.
23. "Photoaffinity Radioligand for NADH:Ubiquinone Oxidoreductase: [*S*-C$^{3}H_2$](Trifluoro-methyl)diazirinyl-pyridaben", B. Latli, H. Morimoto, P.G. Williams and J.E. Casida, J. Labelled Compd. Radiopharm., **41**(3), 191-199 (1998): CA 128 244006: LBNL 40758.

Reviews

1. "Hydrogen Isotope Exchange Labelling Methods - A Glance", P.G. Williams and M.A. Long, Chem. Aust., **54**(5) 158-161 (1987): CA 107 143058p: LBL-22857.
2. "Practicalities of High Level Tritium Labelling", P.G. Williams, Y.S. Tang and H. Morimoto, Chem. Aust., **55**(3), 75-77 (1988): CA 108 175348v: LBL 24115.
3. "^{3}H NMR Studies of Hydrogen Isotope Exchange Reactions", P.G. Williams: in Isotopes in the Physical and Biomedical Sciences: Isotopic Applications in NMR Studies, Volume 2, "Isotopic Applications in NMR Studies", E. Buncel and J.R. Jones (Eds.), Elsevier: Amsterdam (1991), 55-98: CA 116 20431h: LBL 27485.
4. "Use of Nuclear Magnetic Resonance in Probing Ligand—Macromolecule Interactions", D.E. Wemmer and P.G. Williams: in Methods in Enzymology, Volume 239, T.L. James and N.J. Oppenheimer (Eds.), Academic Press, Orlando (1994), 739-767: CA 122 208962: LBL 33913.
5. "Tritium NMR", M.G. Kubinec and P.G. Williams, in Encyclopedia of Nuclear Magnetic Resonance, ed. J.W. Emsley, John Wiley & Sons Ltd., Chichester, Sussex, U.K., **8**, 4819-4830 (1996): LBL 36017.
6. "Tritium NMR in Biology", M.G. Kubinec and P.G. Williams, in Encyclopedia of Nuclear Magnetic Resonance, ed. S.I. Chan, John Wiley & Sons Ltd., Chichester, Sussex, U.K., **8**, 4831-4839 (1996): LBL 35691.

Name: **Hiromi MORIMOTO**

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Education: BS, University of California, Los Angeles, 1959

Memberships: International Isotope Society

Prizes / Awards:

LBL Technology Transfer Certificate of Merit	11/01/91
U.S. Patent # 5,186,868	02/16/93
LBL EH&S Quarterly Safety Award	03/11/93

Employment:

UCLA (student laboratory assistant)	1957 — 1959
Lawrence Berkeley Laboratory Staff Scientist	1960 — 1978
Lawrence Berkeley Laboratory Chemist	1978 — 1981
Lawrence Berkeley Laboratory Staff Scientist II	1981 — present

Experimental Skills:

Gas Chromatography: Ten years occasional use of radio-gas chromatograph in isotope labelling studies.

High Pressure Liquid Chromatography: Ten years continuous use for analysis and purification of chemicals and radiochemicals.

UV/Visible Spectroscopy: Twenty years experience in the use of various spectrometers.

Liquid Scintillation Counting: Twenty years experience in the use of various beta and gamma counters for the estimation of the activity of labelled materials.

Tritium Labelling Chemistry: Ten years laboratory experience in tritiation and deuteration of various organic compounds and pharmaceutical drugs. This has included extensive use of vacuum techniques, and working with 100's of Curies of tritium gas in many individual experiments. Contributed to the development of six new tritide labelling reagents.

Chemical Analysis Experience: Ten years of method development experience, during which assays were developed for:

- analysis of enzymes, bioactive amines, drugs, RNA and DNA
- analysis of drug/receptor interactions using ^{125}I and ^{3}H labelled ligands.

Engineering & Design Experience: Contributed to the original design, construction and preliminary operation of the first vacuum tritiation line at the NTLF. Recently completed the extensive re-design and building of the newest generation of high level tritiation vacuum line (with P.G. Williams). This design approach has been adopted by IN/US Inc., and was incorporated into a complete vacuum tritiation line which they are offering for commercial distribution.

Recent Publications (1995-98):

1. "Carrier Free Tritide Reagents from Lithium Tritide", H. Andres, H. Morimoto, P.G. Williams, E.M. Zippi, Synth. Appl. Isot. Labelled Compd. 1994, (Proc. Fifth Int. Symp., Strasbourg, France), J. Allen and R. Voges (Eds), John Wiley & Sons: Chichester, 83-90 (1995): LBL 36627.
2. "Preparation and Use of Lithium Tritide and Lithium Trimethoxyborotritide", E.M. Zippi, H. Andres, H. Morimoto, P.G. Williams, Synth. Commun., **25**, 17, 2685-2693 (1995): LBL 34679.
3. "Synthesis of H-3 Labeled 5-Fluoro-3-[3-[4-(5-methoxy-4-pyrimidinyl)-1-piperazinyl]propyl]-1H-indole, a Serotonergic Agent with Potential Antidepressant Activity", D.D. Dischino, K.D. Combrink, L. Doweyko, H. Morimoto, B.C. Pearce, P.G. Williams, J.P. Yevich, J. Labelled Compd. Radiopharm., **36** (8), 789-794 (1995): LBL 36777.
4. "Characterization of the adipokinetic hormone receptor from the fat body of *Manduca Sexta*", R. Ziegler, R.D. Jasensky, H. Morimoto, Regulatory Peptides, **57**, 329-338 (1995): LBL 36718.
5. "Very High Incorporation in the C1 Position of Glucose by Exchange with Deuterium or Tritium Gas", M.A. Long, H. Morimoto, P.G. Williams, J. Labelled Compd. and Radiopharm., **36** (11), 1037-1049 (1995): LBL 37549.
6. "Synthesis of a Tritium Labelled Antihistaminic Drug [^{3}H]-N,N-Diethyl-2-[4-(Phenylmethyl)phenoxy]-Ethaneamined - HCl", J.T. Kovalainen, H. Morimoto, P.G. Williams, J. Vepsäläinen, A. Reijonen, J. Gynther, J. Labelled Compd. Radiopharm., **36** (12), 1147-1156 (1995): LBL 37841.
7. "Preparation, NMR Characterization, and Labelling Reactions of Tritiated Borane-THF Complex at High Specific Radioactivity", C. Than, H. Morimoto, H. Andres, P.G. Williams, J. Org. Chem., **60**, 7503-7507 (1995): LBL 37562

8. "A Concerted Mechanism for Ethane Hydroxylation by the Particulate Methane Monooxygenase from *Methylococcus capsulatus* (Bath)", B. Wilkinson, M. Zhu, N.D. Priestley, H.-H.T. Nguyen, H. Morimoto, P.G. Williams, S.I. Chan, H.G. Floss, J. Am. Chem. Soc., **118**, 921-922 (1996): LBL 37931.
9. "Synthesis of a Tritium Labelled Phospholipase A_2 Inhibitor: Aligand for Macromolecular ^{3}H NMR Spectroscopy", A.S. Culf, H. Morimoto, P.G. Williams, W.J.S. Lockley, W.U. Primrose, J.R. Jones, J. Labelled Compd. Radiopharm., **38**, 373-384 (1996): LBL 37945.
10. "Tritium Labelled Alkenes *via* the Shapiro Reaction", M. Saljoughian, H. Morimoto, C. Than and P.G. Williams, Tetrahedron Lett., **37**(17), 2923-2926, (1996): LBL 33862.
11. "Tritium and Deuterium Labelling Studies of Alkali Metal Borohydrides and their Application to Simple Reductions", C. Than, H. Morimoto, H. Andres and P.G. Williams, J. Labelled Compd. Radiopharm., **38**, 693-711 (1996): LBNL 38127.
12. "Synthesis of High Specific Activity Tritium Labelled [2-^{3}H]-Adenosine-5'-Triphosphate", D.K. Jaiswal, H. Morimoto, E.L. Trump, P.G. Williams and D.E. Wemmer, J. Labelled Compd. Radiopharm., **38**, 743-752 (1996): LBNL 38206.
13. "Observation of Kinetic Tritium Isotope Effects by Dynamic NMR. The Tautomerism of Porphyrin", J. Braun, H.-H. Limbach, P.G. Williams, H. Morimoto and D.E. Wemmer, J. Am. Chem. Soc., **118**, 7231-7232 (1996): LBL 38164.
14. "Applications of Tritium NMR to Macromolecules: A Study of Two Nucleic Acid Molecules", M.G. Kubinec, A.S. Culf, H. Cho, D.C. Lee, J. Burkham, H. Morimoto, P.G. Williams and D.E. Wemmer, J. Biomol. NMR, **7**, 236-246 (1996): LBL 38038.
15. "*[6-chloro-3-pyridylmethyl-^{3}H]Neonicotinoids* as High-Affinity Radioligands for the Nicotinic Acetylcholine Receptor: Preparation Using NaB^3H_4 and LiB^3H_4", B. Latli, C. Than, H. Morimoto, P.G. Williams and J.E. Casida, J. Labelled Compd. Radiopharm., **38**, 971-977, (1996): LBL 38502.
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5/97 - 11/98. Tritium Technician, GTS Engineering, Sandia National Laboratories, on assignment with the Defense and Nuclear Technologies Department at Lawrence Livermore National Laboratories and also at the National Tritium Labeling Facility at Lawrence Berkeley National Laboratories. Provide design, fabrication and assembly, and tritium operations support for the tritium facility at LLNL. Participating in a treatability study of tritiated mixed waste using catalytic chemical oxidation at LBNL. Operate tritium handling and decontamination systems.

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